– Boulder, Colorado continued.

- Waste diversion statistics:
  - Single-family residential waste diversion: 48 percent [up from 38 percent in 2003].
  - Multi-family residential waste diversion: 13 percent [up from 12 percent in 2003].
  - Commercial and industrial waste diversion: 25 percent [up from 23 percent in 2003].
- The Master Plan outlines:
  - Current (fiscally constrained) Plan: 60 percent waste reduction by 2007.
  - Action Plan: 70 percent waste reduction by 2012.
  - Vision Plan: 85 percent waste reduction by 2017.

Burlington, Vermont

The City of Burlington adopted the Burlington Climate Action Plan in 2000. In this plan, the reduction of solid waste from municipal buildings and operations was expected to be implemented by the year 2000 and result in emissions reductions of 2,000 $MTCO_2E$ annually. Also, the Burlington city council adopted the Alliance for Climate Action's 10 percent Challenge, which supports the implementation of the Climate Action Plan to reduce greenhouse gas emissions by 10 percent. The Alliance commits to work with regional and statewide entities that can help to achieve this aim, and will support the expansion of this effort beyond the City of Burlington throughout the state of Vermont.

Cambridge, Massachusetts

Various initiatives undertaken during the 1990s, particularly the establishment of the Cambridge recycling program in 1990, have achieved significant reductions in greenhouse gas emissions from waste. Since 1990, annual greenhouse gas emissions have been reduced by 14,343 tons. Proposed actions to prevent waste and increase recycling include:

- Implement a waste prevention program for City government and promote waste prevention in the commercial and residential sectors.
- Carry out projects to increase participation in existing programs and conduct a composition study of the residential waste stream.
- Facilitate construction and demolition waste recycling and commercial food waste collection.
- Conduct waste composition studies every two years to develop information about which new portions of the waste stream to target for recycling or reduction and to evaluate success of the current program.
- Expand electronics recycling and develop a program to recycle commercial waste paper.
- Develop a program to pick up used clothing for recycling at the curb (used clothing can compose up to 6 percent of the waste stream)
- Implement Environmentally Preferable Purchasing by reevaluating the City's system for tracking recycled and non-recycled paper and plastic purchases and working with stores to develop and use point-of-sale reminders to purchase recycled products.

Fort Collins, Colorado

In 1995, the City Council established a policy to reduce Fort Collins' waste stream by 20 percent. By 1999, participation in curbside recycling had risen to over 80 percent. Waste diverted from landfill disposal had reached almost 25 percent. Waste reduction measures include:

- 50 percent waste diversion goal by 2010. An estimated 112,787 tons CO_2 savings will be attributable to this measure in 2010.
- Expand central recycling drop-off site or add second site. An estimated 1,095 tons CO_2 savings will be attributable to this measure in 2010.
- Expand Larimer County Recycling Center. An estimated 18,843 tons CO_2 savings will be attributable to this measure in 2010.
- Larimer County Gas-to-Energy Project. An estimated 84,308 tons CO_2 savings will be attributable to this measure in 2010.
- Construction and Demolition Debris Project. The estimated CO_2 savings for this project have not been quantified.

Portland, Oregon

Portland's Local Action Plan on Global Warming requires businesses to develop plans to recycle a minimum of 50 percent of their waste and divert 54 percent of the city's total waste from landfills.

- Portland's most significant new waste initiative is a recently launched commercial food waste collection program. On the county side, an innovative resource management contract was established to create incentives for waste haulers to increase recycling recovery rates within Multnomah County facilities.
- Through the Portland Office of Sustainable Development's (OSD) BlueWorks business assistance program, recycling participation among businesses is increasing and firms are using more sustainable practices. OSD is also working to boost an already high rate of residential recycling by focusing on low-participating neighborhoods and apartment buildings. Results indicate continuous improvements on both the commercial and residential sides.

Overview of State and Local Climate and Waste Reduction Initiatives

UNITED STATES • ENVIRONMENTAL PROTECTION AGENCY •

State Actions

Many states have begun to show concern about climate change, and some are starting to address the problem. At least 28 states and Puerto Rico have initiated or completed climate action plans. Twenty-five of these plans have incorporated the reduction of waste as a strategy to reduce greenhouse gas emissions. California and Oregon have been on the forefront of action and planning for both climate change and waste reduction. Both have incorporated waste reduction initiatives into their greenhouse gas emission reduction strategies. Information on actions in these two states is highlighted below. Many states are also involved in regional climate change actions, for example through the Regional Greenhouse Gas Initiative (RGGI) in the Northeast.

California

A 50 percent waste diversion mandate was established by the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989).

- Intended results: reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. This action is expected to reduce emissions by 3 million metric tons of carbon dioxide equivalent ($MMTCO_2E$) by 2010.
- Currently California has achieved a statewide diversion rate of 48 percent. The state plans to achieve the additional 2 percent waste diversion of recyclables from landfills by using existing authorities and mandates, collection infrastructures, and recycling processes.

California's Global Warming Solutions Act of 2006 was signed into law by the governor in September 2006.

- Follows governor's Executive Order goal of returning to 1990 emissions levels by 2020.
- Directs the Air Resources Board to develop and implement a program to achieve this goal, including mandatory emissions reporting.
  - Given California's progressive past policies on waste, some waste measures are likely to be included in this program.

California passed a new bottle bill in September 2006 which provides additional market-based incentives to increase recycling of beverage containers and increases funding for expanding recycling programs.

Oregon

The Governor's Advisory Group presented its final report, Oregon Strategy for Greenhouse Gas Reductions, to the governor in March of 2005.

- The Advisory Group report covered multiple sectors including energy efficiency; electricity generation and supply; transportation; biological sequestration; and materials use, recovery, and waste disposal.
- Technical subcommittees on each of the sectors covered by the report identified and evaluated specific actions that could achieve emissions reductions from that sector. Options were forwarded to the Advisory Group, who then selected options for recommendation to the governor. The materials use, recovery, and waste disposal section of the report included ten recommendations for reducing emissions from this sector.
- Each action was described in full with information on potential emission reductions by 2025 and whether the action would be cost-effective.
- The ten recommended actions related to materials use, recovery, and waste disposal are listed in the table below.

Oregon's Recommendations for Emissions Reductions from the Waste Sector*

Recommended Actions	Emissions Reductions by 2025 ($MTCO_2E$)	Cost-Effective
Achieve statutory waste generation and recycling goals.	5,200,000	Yes
Guidance clarifying and expanding alternative final cover performance requirements at larger landfills.	530,000	No
Incentives for larger landfills to collect and burn a minimum percentage (65 to 80 percent) of methane generated.	65%: 470,000 80%: 880,000	No
Incentives to increase salvage of reusable building materials.	20,000	Yes
Increase the "Bottle Bill" redemption value and expand to all beverage containers, except milk.	50,000	Unknown
Develop statewide recovery infrastructure for consumer electronics waste.	30,000	Unknown
Change land use rules to allow commercial composting on land zoned High Value EFU (exclusive farm use).	Less than 10,000	Yes
Increase public awareness to discourage on-site burning of garbage, especially fossil-carbon materials.	20,000	Yes
Continue landfill regulation with additional reporting and analysis.	Unknown	Yes
Evaluate methane emissions from closed landfills and options to reduce such emissions.	Unknown	Unknown

* Note: Oregon estimated emission reductions in the year 2025 only. This is a different method than that used by EPA's WARM model, which estimates emission reductions over time from waste management activities that occur in a specific year. Oregon's estimates are lower than what would be expected from WARM.

- Of these strategies, the greatest potential reduction in greenhouse gas emissions comes from achieving Oregon's waste generation and recovery goals for 2005 and 2009. These goals include:
  - no increase in per capita municipal solid waste generation by 2005.
  - no increase in total municipal solid waste generation by 2009.
  - a 45 percent recovery rate by 2005, and
  - a 50 percent recovery rate by 2009.
- Oregon is on its way toward meeting the recovery goals, having achieved a recovery rate of 47.3 percent in 2003.
- The recommendation to revise solid waste guidance for landfills to require alternative final landfill covers to be as effective as conventional covers at reducing greenhouse gas emissions would have an estimated emission reduction potential of 530,000 $MTCO_2E$ in 2025.
- Incentives to increase salvage of reusable building materials would help pay for start-up costs in establishing an infrastructure for reusable building material sites. Initial incentives of about $2.3 million between 2010 and 2025 are projected to result in emission reductions of 16,000 $MTCO_2E$ in 2025.
- Expansion of the "Bottle Bill" to cover additional drink containers, including juice, water, liquor, wine, tea, and sports drinks, and increasing the deposit and redemption value of these containers from 5 cents to 10 cents would result in potential emission reductions of 50,000 $MTCO_2E$ in 2025.
- The development of a program for reuse and recycling of electronics waste has potential emission reductions of 34,000 $MTCO_2E$ in 2025.
- The use of a public education campaign to discourage on-site burning of garbage, especially fossil-carbon materials, could result in emission reductions of 20,000 $MTCO_2E$ by 2025.
- Cumulative emissions reduction potential of the ten recommended actions is estimated to be 6,000,000 $MTCO_2E$ in 2025, which is less than the sum of the individual measures because emissions reductions of the individual actions interact with each other. This cumulative reduction equals approximately 6.4 percent of Oregon's projected emissions (from all sources) in 2025 under the baseline "business as usual" emissions scenario.

Local Actions

In addition to actions at the state and regional level, many cities and towns are also working to reduce greenhouse gas emissions through changes in waste management. The International Council for Local Environmental Initiatives' (ICLEI) Cities for Climate Protection (CCP) campaign includes more than 150 U.S. cities and counties. One of the cities involved in the CCP program, Seattle, has been a leader in action toward reducing greenhouse gas emissions. One week after the Kyoto Protocol went into effect, Mayor Greg Nickels of Seattle launched a campaign to get U.S. cities to join a coalition to adopt the terms of the treaty. As of August, 2006, 284 mayors from 44 states, representing over 48.8 million citizens, have joined the U.S. Mayors' Climate Protection Agreement and adopted the goals of the Kyoto Protocol.

Many of the cities involved in ICLEI's CCP program and/or the U.S. Mayors' Climate Protection Agreement have developed climate action plans that include waste-related climate initiatives. The following are profiles of selected cities that have tied their greenhouse gas reduction efforts with specific waste management efforts:

San Francisco, California

- Current estimated waste diversion rate of 63 percent
- Goal of 75 percent waste diversion by 2010
- Nation's first curbside food scrap composting program is underway in selected neighborhoods.
- City's climate action plan recommends expanding residential and commercial composting and recycling programs as well as other waste-related actions to reduce greenhouse gas emissions.

Boulder, Colorado

Boulder's Zero Waste Resolution states that the city of Boulder strives to go beyond recycling to try to address the root issues of waste generation. This resolution was adopted by the City Council to provide policy direction to staff. Boulder also has a Master Plan for Waste Reduction, which "sets forth the budget, specific programs, and enabling legislation that will be required to get to 85 percent waste diversion—which by any community's accounts is darn near to Zero Waste." Boulder completed an emissions inventory in 2004, and found that 4 percent of Boulder's greenhouse gas emissions are from solid waste.

– Continued on back.